



DESIGN AND TECHNOLOGY

0445/13

Paper 1 Product Design

May/June 2017

1 hour 15 minutes

Candidates answer on the pre-printed A3 Answer Sheets.

Additional Materials: Standard drawing equipment and coloured pencils.

READ THESE INSTRUCTIONS FIRST

Write your Centre number, candidate number and name in the spaces on **both** printed Answer Sheets.

Write in dark blue or black pen.

You may use an HB pencil for any diagrams, graphs or rough working.

Do not use staples, paper clips, glue or correction fluid.

DO NOT WRITE IN ANY BARCODES.

Answer **one** question.

Write/draw your answers in the spaces provided on the Answer Sheets.

You may use a calculator.

At the end of the examination, fasten all your work securely together.

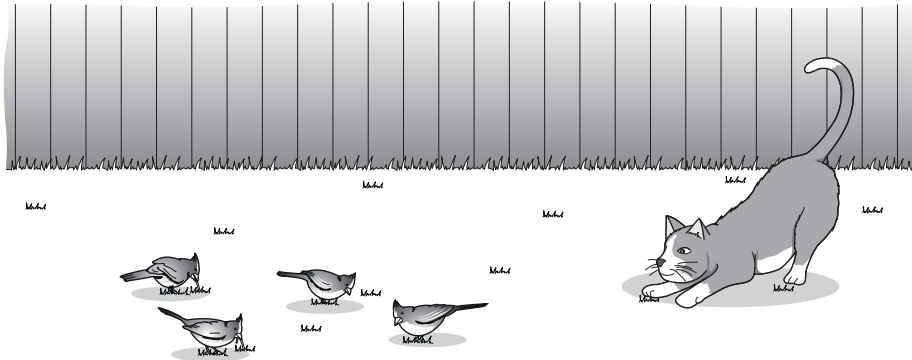
The number of marks is given in brackets [] at the end of each question or part question.

The total of the marks for this paper is 50.

This document consists of 4 printed pages and 2 A3 Inserts.

Answer **one** question only on the A3 pre-printed answer sheets provided.

- 1 Birds are in danger of being caught by other animals when they are feeding on the ground.



Design a feeding station for birds that will be safe for them and provide food and water.

- (a) List **four** additional points about the function of such a feeding station that you consider to be important. [4]
- (b) Use sketches and notes to show **two** ways in which bird food and/or water could be held in place on the feeding station. [4]
- (c) Develop and sketch **three** ideas for the feeding station. [12]
- (d) Evaluate your ideas and justify why you have chosen **one** idea to develop more fully. [8]
- (e) Draw, using a method of your own choice, a full solution to the problem. Include construction details and important dimensions. [12]
- (f) Suggest **two** suitable specific materials for your solution and give reasons for your choice. [4]
- (g) Outline a method used to manufacture **one** part of your solution. [6]

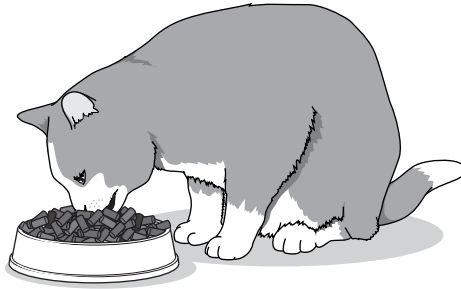
2 Packaging can play an important part in both the sale and use of products.



Design packaging for bird food that will allow the contents to be easily emptied into small containers.

- (a) List **four** additional points about the function of such packaging that you consider to be important. [4]
- (b) Use sketches and notes to show **two** methods of resealing packages once they are opened. [4]
- (c) Develop and sketch **three** ideas for the packaging. [12]
- (d) Evaluate your ideas and justify why you have chosen **one** idea to develop more fully. [8]
- (e) Draw, using a method of your own choice, a full solution to the problem. Include construction details and important dimensions. [12]
- (f) Suggest **two** suitable specific materials for your solution and give reasons for your choice. [4]
- (g) Outline a method used to manufacture **one** part of your solution. [6]

- 3 Food for animals can go stale if left uncovered for long periods.



Design a device that would dispense dry food for cats on a regular basis.

- (a) List **four** additional points about the function of such a device that you consider to be important. [4]
- (b) Use sketches and notes to show **two** ways of controlling the supply of such food. [4]
- (c) Develop and sketch **three** ideas for the device. [12]
- (d) Evaluate your ideas and justify why you have chosen **one** idea to develop more fully. [8]
- (e) Draw, using a method of your own choice, a full solution to the problem. Include construction details and important dimensions. [12]
- (f) Suggest **two** suitable specific materials for your solution and give reasons for your choice. [4]
- (g) Outline a method used to manufacture **one** part of your solution. [6]

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